

**GOVERNOR'S TASK FORCE  
ON BROADBAND**

# **Subgroup Outline**

Updated September 23, 2021



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# 1. NEEDS ASSESSMENT & GAPS

Identify and complete a needs assessment of the “gaps” in the current broadband network deployment. Identify communities most in need of upgraded or new infrastructure.

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Complete data on broadband infrastructure and services is not available at this time and the state of broadband networks is extremely dynamic because of major infusions of resources from federal programs such as USDA’s ReConnect and Community Connect Programs and NTIA’s Tribal Broadband Program. Nevertheless, the subgroup will move forward with the information available to respond to Task #1.

To complete Task #1 the Technical Subgroup has identified important elements which create a “gap” in broadband infrastructure.

1. End-user broadband service level
2. Middle mile availability and capacity
3. Affordability
4. Workforce development
5. Evolving capability

These elements are described in further detail below:

- A. What service should be available to the end-user? Is it capable of supporting the activities which end-users need at their location for health care, education, and commerce? Speed, latency, usage allowance are all important factors that determine the quality of service. Service in rural Alaska should be comparable to services available in urban Alaska. Policy makers should focus on the quality of service provided not the technology used to deliver it.

## SUBGROUP RECOMMENDATION 1

Benchmarks which determine if a community has a gap in broadband infrastructure are:

1. Unserved areas do not have access to 25/3Mbps broadband service
2. Underserved areas do not have access to 100/20Mbps broadband service.
3. Latency must be sufficient for real-time applications such as telemedicine and distance education.
4. Usage should be comparable to broadband packages offered in urban Alaska markets.



#### **SUBGROUP RECOMMENDATION 1 (CONTINUED)**

A community without broadband service at these levels is considered to have a gap in broadband infrastructure, and further categorized as unserved or underserved.

- B. Middle mile infrastructure must be capable of supporting the last mile services needed in a community. If there is not enough capacity on the middle mile backbone, broadband service will be degraded.

#### **SUBGROUP RECOMMENDATION 2**

Future work analyzing broadband policy and programs should include additional data gathering and research to identify middle mile capacity needed per household in a community, recognizing any standard will need to evolve with growing demands of technology and consumer use.

- C. A statewide fiber backbone is needed. This will allow evolution of services to rural Alaska and make rural service more resilient.

#### **SUBGROUP RECOMMENDATION 3**

Future work analyzing broadband policy should include additional data gathering and research to identify hub locations where fiber middle mile should be deployed, which will then support extended service to more remote locations.

- D. The federal bipartisan infrastructure bill is expected to create a generational infusion of resources to deploy broadband infrastructure. Recognize that the level of resources being considered will change the threshold of where it is possible to deploy robust broadband networks, there will be far fewer places in Alaska which can't be reached terrestrially over time with sufficient resources.

#### **SUBGROUP RECOMMENDATION 4**

Recommend robust broadband services be provided to all Alaskans, do not limit long-term expectations based on previous conceptions of where it's not possible to deploy terrestrial infrastructure.



- E. Recognize that gaps also exist in less remote areas of Alaska which have access to urban centers, but may not have robust broadband infrastructure. The bright line between served, urban Alaska and unserved Alaska is often not far outside town.

#### **SUBGROUP RECOMMENDATION 5**

These locations should also be considered unserved or underserved due to gaps in broadband networks. Future work analyzing broadband policy should include additional data gathering and research to identify these areas.

- F. Affordability is important to access to broadband. Alaska's extreme conditions and remoteness drive very high costs to deploy and operate broadband networks. In some cases, infrastructure is deployed, but end-users cannot afford to purchase service resulting in a continued gap in service. But also, in some cases infrastructure is being deployed in remote areas, and due to the additional support from new federal programs, services will be offered at urban rates.

#### **SUBGROUP RECOMMENDATION 6**

Recognize that affordability is an element of gaps in broadband infrastructure. Recognize that affordability is driven by underlying costs, and recognize importance of partnerships between providers and federal and state programs to support affordability.

- G. Workforce development is lacking in areas without broadband infrastructure and should be recognized as an important element of future deployment. Local support is critical to broadband service. A local workforce reduces service disruptions and increases the quality of the service provided. The ability to deploy, operate, maintain, and repair broadband infrastructure depends on local workforce development.

#### **SUBGROUP RECOMMENDATION 7**

Additional priority should be given to providers/projects which include local workforce development.

- H. Broadband infrastructure being deployed today must be capable of evolving to keep up with the technology and future needs of Alaskans. Evolving service levels



in rural Alaska often lag behind urban Alaska. When planning for broadband infrastructure, “Throw the ball forward and work to it.”

#### **SUBGROUP RECOMMENDATION 8**

When developing benchmarks and criteria, recognize that broadband services will continually evolve and demand will increase rapidly, and recognize that it is important to support a decrease in the lag between deployment in rural Alaska and urban Alaska.

- I. Coordination between policy makers, agencies, and programs is critical to ensure the most effective use of resources to connect all Alaskans.

#### **SUBGROUP RECOMMENDATION 9**

Recommend that a future Broadband Office must work closely with federal agencies and other policy makers.

The Tech Subgroup has identified target service levels, without which communities are considered to have a gap in broadband infrastructure.

**[Insert unserved/underserved appendix]**



## 2. BUILDOUT PLAN

Provide recommendations for a buildout plan to close remaining gaps and bring high-speed broadband to all Alaskans.

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[Pending full task force deliberation]



### 3. TECHNOLOGY EVALUATION

Evaluate all technologies that are used to provision broadband, identify and assess the pros and cons of each as they pertain to connecting all Alaskans with high-speed connectivity.

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- I. **Introduction** – Alaska’s extreme size, geography, etc require telecommunications networks to take advantage of a range of technologies. When considering technology, the question is, “Does this technology meet our objectives now AND 10 years from now?” Will it meet the critical needs of telehealth, always-on cloud tech in healthcare, real-time two-way communications, educations, commerce, etc.?
- II. Each technology is useful depending on a variety of factors (location, population size, etc.)

#### III. Middle mile technologies

- a. Define middle mile
  - i. Links between communities within Alaska
  - ii. Connection to the internet in the L48 by subsea cable and/or oversea fiber
- b. Fiber
  - i. Definition: Strands of glass fiber used for communication in conjunction with electronic equipment with utilize light waves to communicate between end points
  - ii. Pros:
    1. “Future-proof”:
      - a. fastest speeds, GIG and faster
      - b. huge capacity, unlimited users
      - c. low latency, supports symmetrical speeds for education, health care, etc.
    2. Lower operating costs
    3. 30+ year life
  - iii. Cons:
    1. High cost of construction
    2. Difficulty in permitting, particularly in protected federal lands.
    3. Risk of damage to subsea cables by fishing/shipping activities



c. Microwave

- i. Definition
- ii. Pros
  - 1. Easier to permit
  - 2. Lower cost of construction
- iii. Cons
  - 1. Limited capacity
  - 2. Risk of damage in severe weather (icing)
  - 3. Higher operating cost – helicopter refueling
  - 4. Spectrum may be limited

d. Satellite – GEO

- i. Definition
- ii. Pros
  - 1. Can serve locations without terrestrial access
- iii. Cons
  - 1. Limited capacity
  - 2. High latency unsuited for real-time applications such as video conferencing

e. Satellite – LEO

- i. Definition
- ii. Pros
  - 1. Can serve locations without access to terrestrial infrastructure
  - 2. Lower latency, suitable for real-time applications
  - 3. Speeds much faster than GEO
- iii. Cons
  - 1. Limited capacity, only can serve a certain number of users in an area

d. Summary Middle Mile

- i. Fiber is the gold standard and should be used wherever feasible because it delivers excellent broadband service, has lower costs to maintain, and is scalable/able to evolve to keep up with future demand.
- ii. Microwave is a solid next option where fiber is not a reasonable possibility, and can be used to extend networks from the end of fiber links.
- iii. Satellite currently serves where neither fiber nor microwave is an option and its use is likely to increase as satellite technology improves and LEO constellations begin service.



## IV. Last Mile

- a. Define last mile
- b. Fiber
  - i. Describe fiber last mile facilities
  - ii. Pros:
    - 1. “future-proof” as above
    - 2. Lower maintenance cost
    - 3. 30+ year life
    - 4. Can be deployed incrementally with fiber-to-the-node, then FTTH
  - iii. Cons:
    - 1. Requires “brownfield” deployment to replace traditional connections to residences/businesses
    - 2. Requires additional equipment at subscriber premise, battery backup systems to ensure ability to dial 911 in emergency when power is out
- c. Twisted copper pair
  - i. Definition.
  - ii. Pros
    - 1. Widely deployed, can be good interim technology until faster technology is deployed
    - 2. Many technologies now allow for “bonding” multiple copper pairs together to increase copper’s efficiency.
    - 3. Can deliver broadband via DSL technology at speeds up to 200Mbps if maintained and system upgraded to shorten loops/reduce length of copper links
  - iii. Cons
    - 1. Limited speeds possible through DSL technology
    - 2. If existing copper plant has not been upgraded, not practical to upgrade for broadband service, fiber overbuild usually necessary
- d. Coaxial Cable
  - i. Definition
  - ii. Pros
    - 1. Widely deployed, although smaller footprint than copper
    - 2. Can deliver very fast broadband speeds, up to Gig
  - iii. Cons
    - 1. Vulnerable to congestion with shared network architecture
    - 2. Smaller footprint than copper, not usually deployed in less densely populated areas.



- e. Fixed Wireless –
  - i. Definition
  - ii. Pros
    - 1. Can be deployed to replace copper network at much lower cost
    - 2. Can be deployed for new service at lower cost than terrestrial infrastructure
    - 3. Provides very fast speeds up to Gig, however in the lab the speeds can be quite high but in the field they degrade based on the environment so hard to give a number.
  - iii. Cons
    - 1. Unlicensed spectrum may experience interference
    - 2. Licensed spectrum requires acquisition through FCC or lease from current holder
    - 3. Requires line of sight, dense trees can limit range
    - 4. can be subject to interference from weather
- f. Summary Last mile

V. **Summary** – many technologies needed to serve Alaskans. Prioritize (best service possible, scalability, other?)

## VI. **Appendix**

- a. Middle mile map (source: ATA)
- b. List of public mapping sources
  - i. NTIA National Broadband Availability Map and Indicators of Broadband Need,  
<https://broadbandusa.ntia.doc.gov/resources/data-and-mapping>
  - ii. FCC Fixed Broadband Deployment Map,  
[https://broadbandmap.fcc.gov/#/Broadband Data Collection](https://broadbandmap.fcc.gov/#/Broadband%20Data%20Collection)
  - iii. FCC Broadband Data Collection,  
<https://www.fcc.gov/BroadbandData>
  - iv. USAC Connect America Fund Map,  
<https://data.usac.org/publicreports/caf-map/>
  - v. OOKLA, <https://www.ookla.com/ookla-for-good/open-data#broadband-mobile-maps>
  - vi. Broadband Now, <https://broadbandnow.com/>



## 4. HURDLES TO INVESTMENT & DEPLOYMENT

Assess the hurdles to broadband investment and deployment. Make recommendations on how the state can play a role to eliminate them.

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- I. **Introduction** – hurdles to broadband development range from lack of capital to make major investments needed to provide broadband service, challenging economics for ongoing operations of broadband infrastructure, to delays and costs from permitting and ROW fees. The State of Alaska can take important steps to accelerate and support broadband infrastructure.
- II. **Resources are needed** - Broadband middle mile projects and last mile upgrades/deployment require large capital expenditures. Ongoing operations in vast areas of Alaska require consistent funding through a mix of end-user revenues and government programs.
  - a. Examples capex costs: (will be provided for final draft of report)
    - i. project costs for SEALink, Aleutian Fiber, Nushagak Fiber [to be provided before final draft of Task Force Report]
    - ii. project costs for last mile projects such as ftth and fixed wireless
  - b. Examples opex costs (will be provided for final draft of report)
  - c. Economics are challenging, in rural Alaska projects must be supported with a complex mix of resources
    - i. Low population, often small economic base limit business case to deploy or upgrade
    - ii. Government programs usually required to bridge the gap
      - a. Federal universal service programs are necessary to support ongoing operations, especially the high cost/Connect America Fund
      - b. State universal service fund supports operational costs for telecom networks
      - c. Multiple federal programs support capex at FCC, USDA, NTIA
  - d. State can assist with:
    - i. Stability in Alaska Universal Service Fund
    - ii. Funds for matching portion of USDA ReConnect Grants
      - a. \$1B program application period this fall.
      - b. Opportunity to bring in funding for projects in the next year In contrast to federal infrastructure funding which will be years out
    - iii. Support end-user costs through a program similar to the federal EBB program.



### **III. Permitting and Right of Way**

- a. Permitting processes are often delayed many months
- b. State agencies attempting to increase revenue from broadband infrastructure by assessing new surcharge structures
- c. Alaska Railroad strategy to monetize right of way
- d. Federal permitting extended and expensive
- e. State of Alaska can prohibit new or increased fees and surcharges, examples:
  - i. Positive: DOT has a simple, streamlined structure which is relatively quick and fees are capped at \$10k per project.
  - ii. Negative: DNR regulations set a 25% floor on revenue from sub-lease (space & power agreements) arrangements and sets no ceiling, instead requiring the utility and DNR to negotiate to an agreement. This is creating extended delays and is being interpreted by DNR in increasingly expansive ways which add operating burden to broadband project in areas where costs are already extreme.
- f. State of Alaska can support federal delegation in working toward relief in permitting burdens



## 5. BROADBAND OFFICE

Provide recommendations for a state repository of broadband information and expertise that does not increase the state budget.

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### Policy Recommendation 5.1: Office of Broadband Deployment

An Office of Broadband Deployment should be established to guide and deliver outcomes consistent with state goals.

#### SUBGROUP RECOMMENDATION - GOVERNANCE

Responding to a State Broadband Advisory Board, named by the governor, representing local, tribal, Alaska Native corporations, school, health, business, and public interests. The SBAB will consider and provide comment on decision-making about regulations, recommended State action and funding, and overseeing planning and proposed decisions. The Board will include representatives from the Departments of Education and Health, and the Department of Commerce.

The Office of Broadband Deployment will be responsible for:

- Maintaining awareness of or coordinating mapping efforts that produce clear, community level visibility of speed and rates, without duplication
- Supporting governance and activities of the State Broadband Advisory Board
- Establishing and supporting the activities of Regional Broadband Planning Committees
- Responding to regional priorities by issuing requests for proposals of companies interested in advancing projects that contribute to state goals
- Working with RBPCs and the advisory board to evaluate project proposals relative to criteria established by the board
- Review and provide analysis of available rate or other data at the federal or state level
- Managing a Statewide Broadband Project Plan, with projects ranked and available to the Legislature to fund the highest needs from available fund sources
- Expedited right of way or navigating permitting access
- Evaluating ways in which broadband deployment can lower costs of state services and critical infrastructure
- Manage the Broadband Parity Adjustment for residents and community facilities
- Produce an annual report to Alaskans and the Legislature on progress made on the recommendations of the Broadband Task Force and objectives set by the board
- Coordinate with the Denali Commission and other potential state and federal partners to further the goals of this office



- Consider ways in which program management may best occur

Alaska's Office of Broadband Deployment will be served by a director, who will respond within the scope of these responsibilities.

### **Policy Recommendation 5.2: Regional Broadband Planning Committees**

The state of Alaska will utilize the RTP or MPO framework (federal transportation planning structures), adapted for effective broadband planning and the allocation of available funds, including federal infrastructure investments.

#### **SUBGROUP RECOMMENDATION – REGIONAL PLANNING**

Regional Broadband Planning Committees (RBPCs) are state-derived planning organizations that identify local broadband and connectivity needs, conduct planning efforts, assist and include local and tribal governments, and integrate into the statewide broadband planning process. Committees are supported by the State and partners and report to the Office of Broadband Deployment. RBPCs formalize the engagement of local government and tribal officials according to state-defined broadband development planning areas.

RBPCs may carry out the following planning tasks:

1. Review federal of state broadband mapping to ensure the region is accurately mapped with correct service levels and speeds.
2. Adopt strategic goals and objectives designed to drive investment into key areas identified by the committee.
3. Use available mapping available from all sources to develop long range broadband development plans to achieve the speeds and availability called out for in the goals and objectives.
4. Engage local governments and tribes within the region to coordinate funding opportunities and projects.
5. Provide feedback to the state broadband office on service area needs.
6. Work with the State broadband office to effectively deploy available funds to vetted and prioritized projects and consult on project development and implementation.
7. Evaluate local planning or regulatory processes to remove barriers or burdens that do not contribute to meeting state broadband goals.
8. Provide technical assistance to local officials and tribal leaders.



RBPCs have the following organizational structure:

- Are established as a multi-jurisdictional, intergovernmental committee that includes local government, tribal government, regional and village Alaska Native Corporations, and agency representatives.
  - Have an advisory committee, with a majority of members being local and tribal officials, and as appropriate, representatives from private business, economic development practitioners, education institutions, libraries, health clinics and hospitals and the public in the region.
- Broadband planning areas have boundaries established by the state broadband office, applied to all areas of the state. These boundaries should be consistent with federal definitions, following borough or census areas and the combination thereof.
  - Broadband planning areas may be further defined by development zones, according to priorities established by that RBPC, focused on high-need, high-impact needs.
- The state broadband office serves as the fiscal and administrative agent.
- RBPCs have established goals consistent with the broadband office, to expire when goals have been completed, except or when locally determined to take on independently.



## 6. STATE PARTICIPATION

Identify and lay out recommendations of policies and guidelines for state participation in broadband infrastructure development and ongoing operations.

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### Policy Recommendation 6.1: State Policy

Vision: Make it possible for Alaskans to participate and be competitive in the global community by extending the full benefits of broadband to every Alaskan.

Goal: To facilitate increased speed and lower cost of broadband in Alaska, consistent with State broadband policy.

#### SUBGROUP RECOMMENDATION – LONG-TERM OBJECTIVES

That (1) no later than 2030, all Alaska businesses and homes have access to broadband that provides minimum download speeds of at least 25 megabits per second and minimum upload speeds of at least three megabits per second;

(2) no later than 2035, all Alaska businesses and homes have access to at least one provider of broadband with download speeds of at least 100 megabits per second and upload speeds of at least 20 megabits per second; and

(3) that the consumer rates of broadband are transparent, offset, and otherwise adjusted to ensure equitable affordability.

Guiding principles for broadband development:

- Accessibility – All Alaskans should have improved access to high-speed broadband; State policy should identify baseline service and set goals for improvements
- Affordability – Lowering the cost of broadband increases the opportunity for business development, increased healthcare and educational achievement, and overall quality of life.
- Scalability – Tomorrow’s needs may be met with new and different technology, and today’s infrastructure should be able to evolve to integrate into or serve as a platform for the future.
- Partnership – Effective broadband deployment will involve intergovernmental cooperation, and public-private partnerships, including industry collaboration.
- Impact – The State should prioritize investments that make the most difference, a combination of quick but scalable action to address unserved and underserved communities, and long-term planning that lowers transaction costs of critical infrastructure and for all Alaskans.



- Equity – Need should be evaluated at a regional basis and investments occur relative to reducing inequities, thereby establishing better balance between access and cost across regions, even as solutions don't lock communities into a new, future-deficient status quo.
- Maximize in-state participation – We encourage local hire and local investment, develop local training opportunities, and strengthen Alaska technical capacity
- Technology neutral – The State takes no position on the current or potential technologies utilized to deliver the goals of State broadband policy.

## **Policy Recommendation 6.2: Broadband Parity Adjustment**

Structured similarly to Power Cost Equalization and/or the federal Emergency Broadband Benefit, the Broadband Parity Adjustment is a recognition that the scale of the investment necessary to bring necessary infrastructure for broadband into every community in Alaska is a time and resource intensive prospect. While the State can make great strides in the coming years, it has a responsibility and opportunity to also bring down the cost of living and doing business until and at such time as it has met the goals of its broadband policy. The goal for the State remains to build out infrastructure that obviates the need for the subsidy, and that this need should be reduced over time.

As an example, and path forward for further analysis, the State may establish a standard rate baseline for the delivery of broadband at speeds of 100/20 averaged across all communities that have that level of service. The average rate for that speed may be considered the baseline from which an adjustment may be applied to consumers in communities that don't have that same access or level of rate. For whatever speed is available, the cost would then be adjusted if it is higher than that average, with credits applied to consumer accounts.

Beneficiaries shall include residents, businesses, nonprofits, and local and tribal governments. Schools, libraries, and hospitals receive federal benefits and subsidy already, thus excluding them from the adjustment. Analysis shall be conducted to ensure that existing subsidies aren't negatively impacted.

This adjustment doesn't equalize speeds. It doesn't equalize costs, as it is applied to a different level of speed. It is, however, a recognition that the differences between communities can be addressed relative to their condition.

One option for consideration is a rate adjustment may accrue to a project developer in an unserved or underserved community for the first three years after project implementation, on the average of the prior three years of rate, thereby encouraging project development.

The State may consider ways in which such an adjustment could be funded, including current or changes within current fee structures, establishment of an endowment from some portion of available federal funds, pooled federal funds that may come to the State and tribes, and/or other mechanisms as determined by the State.



### **Policy Recommendation 6.3: Prioritization of State Investment**

The State may prioritize broadband deployment that lowers costs, increases speed, quality, and capacity in unserved and underserved communities, based on a variety of factors as determined by the Office of Broadband Deployment and RBPCs, and broader state policy goals.

### **State Policy Considerations and Guidelines for infrastructure development and ongoing operations**

The following are offered as additional considerations as applied to broader state policy or agency activities.

#### Access

- Develop a durable digital equity plan – aggressively measuring digital need across jurisdictions, including speed testing, accurate pricing data, physical network gaps, and locations for wraparound digital equity programming.
- Identify and support local efforts to expand broadband access, workforce development, digital navigation, and digital inclusion/literacy programming (with a focus on equity).
- Identify and support similar efforts by libraries, chambers of commerce, colleges/universities, and other entities.
- Enhance public safety and emergency services for state and national emergency communications access to the broadband network including the state's Emergency Operations Center.

#### Infrastructure Development

- Implement smart "dig once" policies and practices including "rights of way" as public assets.
- Address broadband needs without increasing broadband inequities.
- Establish guidelines for funding accountability, including to ensure funds are dispersed efficiently and expeditiously.
- Streamline the permitting process for broadband deployment projects through the Office of Project Management and Permitting (OPMP) within the Department of Natural Resources to improve financial viability and shorten broadband deployment timelines.

#### Ongoing Operations

- Encourage community-level engagement and partnerships.
- Commit to, work with, and avoid duplication of world-class broadband data and mapping analytics.



- Without duplication, encourage participation in and review local speed testing and other data collection projects.
- Encourage Alaskans to take necessary precautions against cyberattacks and ensure cybersecurity as part of expanded service and infrastructure, and to include this in project development as a criteria for consideration.

### Partnerships

- Expand current capabilities to support disaster preparedness and post-disaster recovery planning for broadband infrastructure (along with other public utilities).
- Streamline current state e-government systems and foster improved user access, ease of use, application development, and deployment.
- Create or augment existing (such as at the University of Alaska) training programs for knowledge workers, technicians, and web-based industries through the Alaska Department of Labor and Workforce Development that provide hands-on, long-term training to build business-level proficiency in digital media skills and telecommunications support services.
- Support partnerships where appropriate with Canadian telecom networks at key cross border points where such partnerships could enhance network diversity and resiliency.
- Ensure broadband planning is done in collaboration with FirstNet and the Public Safety Broadband Network as well as with state and local providers to ensure there are efficiencies in planning, build-out, deployment, and adoption.



## 7. FUNDING PRIORITIZATION

Recommend program-based guidelines or rules for equitable use of state funding in broadband infrastructure development.

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[Pending full task force deliberation]